

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

ADDENDUM NO. 3 TO

CLEANUP AND ABATEMENT ORDER NO. 91-45

AN ADDENDUM MODIFYING THE FREE PRODUCT RECOVERY AND
POST-REMEDIATION GROUND WATER MONITORING REQUIREMENTS
FOR
PETROLEUM HYDROCARBON CONTAMINATION OF GROUND WATER
IN THE DOWNTOWN SAN DIEGO AREA
SAN DIEGO COUNTY

The California Regional Water Quality Control Board, San Diego Region (hereinafter RWQCB) finds that:

1. On May 13, 1991 the RWQCB Executive Officer issued Cleanup and Abatement Order (CAO) No. 91-45 to the Redevelopment Agency of the City of San Diego (RACSD), Shell Oil Company and GTF Properties; Unocal Corporation and Golden West Hotel; Greyhound Lines, Inc. and Transportation Leasing Company (hereinafter the dischargers). CAO No. 91-45 consolidated some remedial activities and ground water monitoring previously required under CAOs 89-48 (*GTF Properties and Shell Oil Company*), 89-49 (*Greyhound Lines Inc.*); 89-50 (*Redevelopment Agency for the City of San Diego*), and 89-51 (*Golden West Hotel and Unocal Corporation*).
2. In a letter dated December 23, 1993, the consultant (Anthony D. Daus of Geomatrix Consultants, Inc.) summarized the results of free product skimming, ground water monitoring and Dr. David Huntley's evaluation of the distribution and mobility of hydrocarbons located beneath the Greyhound site. In the opinion of the consultant, most of the fuel hydrocarbons are immobilized in the soil column above the water table. The results of this evaluation formed the basis for their conclusion that product skimming does not remove significant volumes of fuel hydrocarbons. The consultant proposed that implementation of bioventing/soil vapor extraction would remove significantly more mass from the site than product skimming alone.
3. The December 23, 1993 letter from Geomatrix also requested that the Cleanup and Abatement Order be modified to:
 - a) not require continued skimming of the monitoring wells containing free petroleum product;

- b) change the Remedial Action Program from an area wide free product extraction program to a site specific cleanup objective and methodology; and
 - c) modify the frequency of area wide ground water level and product thickness monitoring program measurements described in Directive 1(a) from every month to every other month.
- 4. Under the requirements of the California Code of Regulations, Title 23, Chapter 16, Articles 5 (Section 2655) and 11 (Section 2722), free product removal is required as part of the corrective action process at leaking underground storage tank sites. Free product shall be removed in a manner that minimizes the spread of contamination into previously uncontaminated zones by using recovery and disposal techniques appropriate for the hydrogeological conditions at the site. Further, the removal of free product shall be to the maximum extent practicable as determined by the local agency (ARTICLE 11, Section 2655).
- 5. The RWQCB understands that the dischargers wish to implement individual remediation programs at the four sites identified in CAO 91-45. This request is consistent with the corrective action requirements of 23 CCR, Article 11.
- 6. The RWQCB has received and approved work plans for the implementation of remedial work at the Greyhound/Transportation Leasing Company site (at 539 First Street) and the GTF/Shell Site at (148 Market Street), the Golden West/Unocal site (235 Market Street), and the RACSD site (at 303 Market Street).
- 7. The ground water monitoring data reported to the RWQCB Executive Officer from 1987 to 1995 indicate that free petroleum product continues to be present in a number of wells associated with the sites included in CAO 91-45. Historical ground water monitoring data indicate that the plume conditions identified in Findings 4 and 5 (as modified by Addendum No. 1 of CAO 91-45) are still true.
- 8. The free product recovery data, for the time period June 1991 to December 1995, provided by the dischargers indicate that a total of 768.3 gallons of free petroleum product was recovered from ground water monitoring wells associated with these sites. Approximately 365 gallons of this total was collected using manual skimming techniques. This is an average recovery rate of approximately 8 gallons per month.

9. The *Water Quality Control Plan for the San Diego Region (9)* (Basin Plan) was adopted by the RWQCB on September 8, 1994; approved by the State Water Resources Control Board (SWRCB) on December 13, 1994, and approved by the Office of Administrative Law on April 26, 1995.
10. The RWQCB must include requirements of State Water Resources Control Board (SWRCB) Resolution Nos. 68-16 (*Statement with Respect to Maintaining High Quality Waters in California*) and 92-49 (*Policies and Procedures for Investigation and Cleanup and Abatement of Dischargers Under Water Code Section 13304*) in the enforcement of the California Water Code. Under these SWRCB requirements, the RWQCB is required to ensure that dischargers are required to clean up and abate the effects of discharges in a manner that promotes the attainment of background water quality, or the highest water quality which is reasonable if background levels can not be restored, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible; any alternative levels less stringent than background shall:
 - a) be consistent with the maximum benefit to the people of the state;
 - b) not unreasonably affect the present and anticipated beneficial use of such water; and
 - c) not result in water quality less than that prescribed in the Water Quality Control Plans and Policies adopted by the State and Regional Water Boards.
11. State Water Resources Control Board (SWRCB) Resolution No. 92-49 (Section III(G)) requires the RWQCB to consider the conditions set forth in CHAPTER 15 (23 CCR, Division 3, CHAPTER 15, Article 5, Section 2550.4) in approving any alternative cleanup levels less stringent than background concentrations of contaminants.
12. SWRCB regulations governing the site investigation and corrective action at underground storage tank unauthorized release sites are contained in CCR, Title 23, Division 3, Chapter 16. In particular, ARTICLE 11, commencing with Section 2720 is applicable to this cleanup and abatement order.
13. This enforcement action is exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 21000 et seq.) in accordance with Section 15321, Chapter 3, Title 14, California Code of Regulations.

IT IS HEREBY ORDERED, that pursuant to Section 13304 of the California Water Code, the dischargers shall comply with the following Directives:

INTERIM REMEDIAL ACTION

1. The dischargers shall continue to implement interim remedial measures as necessary to:
 - a.) remove free petroleum product from the water table at each of their respective sites as required by the California Code of Regulations (CCR), Title 23, Division 3, Chapter 16, Article 5 (Section 2655) and Article 11 (Section 2722(b)); and
 - b.) abate or correct the actual or potential effects of the unauthorized release.

CORRECTIVE ACTION PLAN

2. Pursuant to the requirements of the CCR Title 23, Division 3, Chapter 16, Article 11 (ARTICLE 11); the dischargers shall each submit a Corrective Action Plan (CAP) for their respective sites identified in CAO 91-45. The CAPs must contain all the elements specified in Article 11 (Section 2725) including:
 - a.) an assessment of impacts in accordance with ARTICLE 11, Section 2725(e),
 - b.) a feasibility study to evaluate site remediation and mitigation alternatives in accordance with ARTICLE 11, Section 2725(f),
 - c.) cleanup levels in accordance with the requirements of ARTICLE 11, Section 2725(g) and which comply with the requirements listed in ARTICLE 11, Section 2721(b), SWRCB Resolution No. 92-49, and Directive No. 7 of this Order,
 - d.) proposed method(s) and schedule for monitoring and reporting the progress of remediation at their respective sites. These results should be used by the discharger to evaluate the effectiveness of the approved corrective action alternative implemented by the discharger to remediate the soil and ground water contamination from the unauthorized release at their respective sites. The results and the technical evaluation must be reported to the RWQCB Executive Officer for review and comment.

The CAP for each individual site included in CAO 91-45 must be submitted to the RWQCB Executive Officer on or before **September 30, 1996**.

3. The feasibility study described in Directive 2b of this order shall contain an evaluation of alternatives for cleanup of soil and ground water. The evaluation shall be consistent with the requirements of CCR Title 23, Division 3, Chapter 16, ARTICLE 11, Section 2725(f) and include the following elements:
 - a.) An evaluation of the effectiveness, feasibility and cost of at least one alternative to mitigate nuisance conditions and risk of fire or explosion.
 - b.) An evaluation of methods to control the spread of the dissolved contaminant plumes off the individual properties.
 - c.) A comprehensive description of the cleanup and abatement activities associated with each recommended alternative.
 - d.) A proposed time schedule, including interim milestone dates, for completion of each recommended alternative.
 - e.) The dischargers shall remove and/or treat all fuel contaminated soils to a level which will not cause the generation of free petroleum product on the ground water at their respective sites.
 - f.) The dischargers shall propose ground water cleanup levels for any residual dissolved fuel constituents from their respective sites. The proposed cleanup levels must be consistent with the requirements of the RWQCB Basin Plan (1994), ARTICLE 11 (Section 2725(g)(2)), and be protective of human health and the environment. The dischargers shall present sound technical rationale to support the proposed ground water cleanup levels in the CAP.
4. The dischargers shall modify their respective CAPs as directed by the RWQCB Executive Officer. Implementation of the CAP may begin within 60 calendar days after submittal, unless the dischargers are otherwise directed in writing by the RWQCB Executive Officer. Before implementing the proposed corrective action alternative, the dischargers shall:
 - a.) notify the RWQCB Executive Officer of their intention to begin cleanup;
and

- b.) comply with any conditions set by the RWQCB Executive Officer, including the mitigation of adverse consequences from cleanup activities.
- c.) The dischargers shall modify or suspend cleanup activities when directed to do so by the RWQCB Executive Officer.

VERIFICATION SAMPLING AND MONITORING

- 5. Upon completion of corrective action, the dischargers shall perform soil sampling and ground water monitoring which is necessary to verify: a) the effectiveness of the selected remedial alternative(s) identified in their respective Corrective Action Plans and/or b) other interim remedial action(s) implemented at their respective sites. The dischargers shall prepare a site-specific work plan for verification sampling and monitoring in compliance with Section 2727 of ARTICLE 11.

The work plan for verification sampling and monitoring of the completed corrective action plan (Directive Number 2) must be submitted to the RWQCB for review and approval within **60 days** of full implementation of the CAP. The dischargers shall modify the proposed work plan as required by the RWQCB Executive Officer.

The results from the verification and monitoring work plan must be submitted to the RWQCB Executive Officer within **90 days** of approval of the verification and monitoring work plan by the RWQCB. The dischargers may propose in writing an alternative deadline to the RWQCB Executive Officer for review and approval.

- 6. The dischargers shall manage all petroleum hydrocarbon contaminated ground water and/or soil, generated as a result of any corrective action work at their respective sites, in accordance with all applicable local, state and federal regulations and requirements.
- 7. Based upon review of each individual Corrective Action Plan (CAP), interim remedial action work plan and/or verification sampling and monitoring results, the RWQCB Executive Officer may amend this cleanup and abatement order to identify the target ground water and soil cleanup levels to be attained at the particular site or sites. If this Order is not amended by the RWQCB Executive Officer, then:
 - a.) The mitigation of free petroleum product is the minimum water quality protection standard to be implemented for ground water at each site.

- b.) Residual fuel contaminant concentrations in soils at each site must be low enough so as not to yield free petroleum product to the ground water. The dischargers shall propose to the RWQCB Executive Officer a range of site-specific soil cleanup levels based upon a technical evaluation of residual saturation concentrations in fuel contaminated soils at each site. The proposed soil cleanup levels must also be protective of human health and the environment, and comply with the water quality protection requirements of CCR Title 23, Article 11; SWRCB Resolution No. 92-49; and the RWQCB Basin Plan (1994).

The dischargers shall implement their Corrective Action Plans in accordance with a time schedule proposed by the dischargers and approved by the RWQCB Executive Officer. The dischargers shall modify their proposed CAPs as required by the RWQCB Executive Officer.

GROUND WATER MONITORING


- 8. The dischargers shall continue to implement a coordinated ground water monitoring program for the Marina Sub Area of the Centre City Redevelopment Project. The dischargers shall, unless these requirements are modified by the RWQCB:
 - a.) Measure and remove free petroleum product from ground water monitoring wells on a quarterly schedule. This requirement modifies the previous schedule for free product removal and measurements of water levels required by Directive No. 1(a) in CAO No. 91-45 and Directive No. 2(a) of Addendum No. 2 of this Order.
 - b.) Continue monitoring and reporting of results from ground water wells as required by Directive Nos. 1(b) and 1(c) of CAO 91-45 as modified by Directives Nos. 2 through 5 of Addendum No. 1 to this Order.
 - c.) Continue implementation of the remedial actions required in the August 20, 1990 Remedial Action Plan until such time as Corrective Action Plans (CAP) are approved by the RWQCB Executive Officer as required in Directive 1 of this Addendum.
- 9. Directive No. 7 of Cleanup and Abatement Order No. 91-45 is amended to read: "After the dischargers demonstrate to the Regional Board Executive Officer's satisfaction that free product has been removed to the extent practicable, the dischargers shall continue to monitor the ground water and submit semi-annual ground water monitoring reports in accordance with the

requirements of Directives Nos. 1.b and 1.c of Cleanup and Abatement Order No. 91-45 as modified by Addendum No. 1. Modifications to the required ground water monitoring program may be proposed by the dischargers for review and approval by the RWQCB Executive Officer."

PROVISIONS

10. Directive No. 2(a) of Addendum No. 2 to Cleanup and Abatement Order No. 91-45 is hereby replaced by Directive No. 8(a) of this addendum.

Ordered by:



JOHN H. ROBERTUS
Executive Officer

Date: June 14, 1996

As Amended by Errata on June 13, 1996